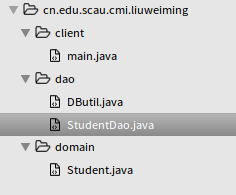
# 实验二：ORM设计模式和DAO模式

# 项目建立



# 实体类、DAO类、工具类、客户端类的设计

由于linux下暂无找到合适的画图工具，此模块暂时留空。抱歉。

# 实体类设计

package domain;

**public** **class** Student {

**private** String studentID, studentName;

**public** String getStudentID() {

**return** studentID;

}

**public** **void** setStudentID(String studentID) {

**this**.studentID = studentID;

}

**public** String getStudentName() {

**return** studentName;

}

**public** **void** setStudentName(String studentName) {

**this**.studentName = studentName;

}

**public** Student() {

studentID = **null**;

studentName = **null**;

}

**public** Student(String studentID, String studentName) {

**super**();

**this**.studentID = studentID;

**this**.studentName = studentName;

}}

# 3. DAO类设计

package dao;

import **java.sql.Connection**;import **java.sql.ResultSet**;

import **java.sql.SQLException**;

import **java.util.ArrayList**;import **java.util.List**;

import **com.mysql.cj.api.jdbc.Statement**;

import **com.mysql.cj.api.mysqla.result.Resultset**;

import **com.mysql.cj.jdbc.PreparedStatement**;

**public** **class** StudentDao {

**public** **void** addStudent(Student student) {

**try** {

Connection connection = DbUtil.getConnection();

String sql = "insert into student(student\_id, student\_name) values(?, ?)";

PreparedStatement preparedStatement = (PreparedStatement) connection.prepareStatement(sql);

preparedStatement.setString(1, student.getStudentID());

preparedStatement.setString(2, student.getStudentName());

preparedStatement.execute();

} **catch** (SQLException e) {

*// TODO Auto-generated catch block*

e.printStackTrace();

}

}

**public** List<Student> select() {

**try** {

Connection connection = DbUtil.getConnection();

Statement statement = (Statement) connection.createStatement();

Resultset resultset = (Resultset) statement.executeQuery("select \* from student");

List<Student> ans = **new** ArrayList<>();

Student student = **null**;

**while** (((ResultSet) resultset).next()) {

student = **new** Student();

student.setStudentID(((ResultSet) resultset).getString("student\_id")); *//数据库中的名字*

student.setStudentName(((ResultSet) resultset).getString("student\_name"));

ans.add(student);

}

**return** ans;

} **catch**(Exception e) {

e.getMessage();

}

**return** **null**;

}}

package dao;

import **java.sql.\***;

**public** **class** DButil {

**private** **static** **final** String URL = "jdbc:mysql://localhost:3306/liuweiming?serverTimezone=UTC";

**private** **static** **final** String USER = "root";

**private** **static** **final** String PASSWORD = "请输入密码";

**private** **static** Connection connection = **null**;

**static** { *//只加载一次，以后都不加载*

**try** {

*//1.加载驱动程序*

Class.forName("com.mysql.cj.jdbc.Driver");

*//2. 获得数据库连接*

connection = DriverManager.getConnection(URL, USER, PASSWORD);

} **catch** (SQLException e) {

System.out.println("DbUtil22" + " " + e.getMessage());

System.out.println(PASSWORD);

e.printStackTrace();

} **catch** (ClassNotFoundException e) {

*// TODO Auto-generated catch block*

e.printStackTrace();

}

}

**public** **static** Connection getConnection() {

**return** connection;

}}

# 数据库访问的公共类设计

Server端

import **java.text.SimpleDateFormat**;

import **java.util.\***;

import **java.util.concurrent.ExecutorService**;

import **java.util.concurrent.Executors**;

import **java.util.concurrent.Semaphore**;

import **java.util.concurrent.locks.Condition**;

import **java.util.concurrent.locks.Lock**;

import **java.util.concurrent.locks.ReentrantLock**;

**public** **class** Main {

**static** bank bk = **new** bank();

**public** **static** **void** main(String[] args) {

ExecutorService ex = Executors.newCachedThreadPool();

ex.execute(**new** cutMoney());

ex.execute(**new** addMoney());

ex.shutdown();

}

**static** **class** addMoney **implements** Runnable {

@Override

**public** **void** run() {

**while** (**true**) {

**int** val = (**int**)(Math.random() \* 10) + 1;

bk.add(val);

**try** {

Thread.sleep(3000);

} **catch** (InterruptedException e) {

*// TODO Auto-generated catch block*

e.printStackTrace();

}

}

}

}

**static** **class** cutMoney **implements** Runnable {

@Override

**public** **void** run() {

**while** (**true**) {

**int** val = (**int**)(Math.random() \* 10) + 1;

**try** {

**while** (!bk.cut(val)) {}

} **catch** (InterruptedException e) {

*// TODO Auto-generated catch block*

e.printStackTrace();

}

}

}

}

**static** **class** bank {

**private** Lock lock = **new** ReentrantLock();

**private** Condition signal = lock.newCondition();

**private** **int** money = 0;

bank() {}

**int** getMoney() {

lock.lock();

**try** {

**return** money;

} **finally** {

lock.unlock();

}

}

String getNowTime() {

SimpleDateFormat df = **new** SimpleDateFormat("yyyy-MM-dd HH:mm:ss ");

**return** (df.format(**new** Date()));

}

**boolean** cut(**int** val) **throws** InterruptedException {

lock.lock();

**try** {

**while** (money < val) {

System.out.println(getNowTime() + " 不够 " + val + " " + " 现在有 " + money);

signal.await();

}

money -= val;

System.out.println(getNowTime() + " 扣除" + val + "钱");

} **catch** (InterruptedException e) {

} **finally** {

lock.unlock();

}

**return** **true**;

}

**void** add(**int** val) {

lock.lock();

**try** {

money += val;

System.out.println(getNowTime() + " 转入" + val + "钱");

signal.signalAll();

} **catch** (Exception e) {

e.printStackTrace();

} **finally** {

lock.unlock();

}

}

}}

# 客户端设计

package client;

import **java.util.List**;

**public** **class** Main {

**public** **static** **void** main(String[] args) {

StudentDao studentDao = **new** StudentDao();

**try** {

studentDao.addStudent(**new** Student("201527010414", "liuweiming"));

List<Student> res = studentDao.select();

**for** (Student i : res) {

System.out.println(i.getStudentID() + " " + i.getStudentName());

}

} **catch** (Exception e) {

*// TODO Auto-generated catch block*

e.printStackTrace();

}

}}

// 客户端外加jsp页面。上面的客户端只用于测试

# 运行效果

流程：



结果：

